**Primitive Reflexes**

According to Sally Goddard Blythe, Director of the Institute for Neuro-Physiological Psychology, if there is a cluster of primitive reflexes still present and/or the absence of the postural reflexes, this may be partially responsible for causing motor, sensory and development delays.

1. During fetal development a group of primitive reflexes emerge
2. These primitive reflexes should be present as birth and provide an indication of the status of the Central Nervous System. (Apgar test)
3. These primitive reflexes should slowly be inhibited during the first year of life.
4. As primitive reflexes are inhibited, postural reflexes, should emerge to help the infant or child cope with demands of a gravity based environment.
5. A cluster of primitive reflexes that remain will indicate the Central Nervous System is dysfunctioning in some way.

Individually retained Primitive reflexes impair specific areas of functioning. For example, one reflex will prevent automatic hand control every time the head is moved, so that writing can never become fluent. Another reflex will affect the balance mechanism, and the coordination of balance and smooth eye movements, so that in certain situations the eyes will play "tricks", and the letters on the page will appear to "dance", or, may appear in a different order from one day to the next. The child may be "stimulus bound", so that his eyes are automatically drawn to anything moving within his visual field, and in a classroom he will be distracted easily.

Many times, Primitive Reflexes are retained due to the following issues:
- Low birth weight (under 5 lbs)
- Requiring resuscitation
- Incubation
- Blue baby
- Distorted skull
- Heavy bruising
- Prolonged jaundice
- Problems with feeding during the first 6 months Infancy
- Illnesses involving a high fever, delirium or convulsions in the first 18 months
- Adverse reaction to any of the vaccinations
- History of recurrent ear, nose and throat infections
- Severe allergic reactions

**Individual Primitive Reflexes**

Important development stages correspond very closely to reflex chronology (inhibition to emergence). The following below is a brief look at some of the various primitive and postural reflexes as described by Sally Goddard Blythe.

The Moro Reflex
Emerges around 8-9 weeks in utero and is inhibited at about 16 weeks of neonate life. It is
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transformed into the adult startle or Strauss reflex, and should not be present in children beyond the age of one year at the very, very latest.

It is a panic alarm reflex which helps the baby to hang on and cry in alarm. The startle reflex is a rapid intake of breath, blink, shoulders up and then locate the source. Agoraphobia panic victims, for example, still retain the Moro reflex. It can be activated by a sudden noise, movement/alteration of head position or change of light.

Adults who retain Moro Reflex: If a person grows up with this reflex but manages to control it, it can affect the entire personality. They may need to ask question after question and are not happy about change unless they have instigated it. If they are going somewhere they want to know who will be there, what will happen and what they will have to do. They may be uptight and egocentric, not because they want to be, but because they need to be in control as much as possible. They also find it difficult to make relationships as they need to control the other person.

Children who retain Moro Reflex: May be immature, very sensitive, over-reactive, often lose cortical control, pupils tend to remain enlarged under minimum stress. Pupils will be more dilated than normal because of the fight/flight mechanism, however, for many of children with a strong Moro, the pupils remain dilated and they are hypersensitive to light. They do not know when to stop and do not learn from experience. They will also tend to burn up blood sugar quicker than other children, which will make swings in mood and performance more pronounced.

Example of Moro child: Oversensitive in one or more sensory channels, operates at a high level of awareness. The effect on such a child in a typical classroom: bright fluorescent lights, much movement and activity, often a great deal of noise and high temperatures - such a child can easily experience sensory overload. Many of these children are unable to ignore irrelevant stimuli within their visual field and have a poor concentration span.

Retained Moro Reflex
- Vestibular problems (travel sickness, impaired coordination, balance)
- Physical timidity
- Oculomotor and visual-perceptual problems (inability to ignore irrelevant stimuli within the visual field, eyes drawn to outline of shape at expense of internal shape or object).
- Poor pupillary reaction to light, photosensitivity, difficulty with black print on white paper.
- Individual tires easily under fluorescent lights.
- Possible auditory confusion resulting from hypersensitivity to certain specific sounds. Poor auditory discrimination skills - difficulty shutting out background noise.
- Allergies and lowered immunity - asthma, eczema or history of frequent ear, nose and throat infections.
- Adverse reaction to drugs.
- Poor stamina.
- Dislike change or surprise - poor adaptability.
- Reactive hypoglycemia.
- Free floating anxiety - "Angst"
- Excessive reaction to stimuli
- Mood swings - labile emotions.
- Tense muscle tone - body armoring
- Difficulty accepting criticism, as this individual finds it so difficult to change.
- Cycle of hyperactivity followed by excessive fatigue.
- Difficulty making decisions.
- Weak ego, low self esteem: insecurity/dependency, need to control or manipulate events.

The Palmar Reflex
Emerges at around 11 weeks in utero and is inhibited or suppressed at about 2-4 months after birth. It is activated by stimulation in the palm of the hand.

The Palmar reflex should not be present beyond the first year of life, but if it remains present in children of school age, writing problems will develop. As soon as a pen or pencil is put into the child's hand, the fingers automatically tighten, and get tighter and tighter. The pressure increases on the paper and they start to lose control of the hand. They may not find it easy to move the fingers and thumb for rapid alternate movement, and if they cannot do this (dysdiadochokinesia), it shows that there is an immaturity of the cerebellum, and poor speech/language is a likely consequence.

The cerebellum does not cross over, and so if you cannot do the movement on the right side, it shows that there is a problem in the right side of the cerebellum. In the early months of life the Palmar Reflex can be activated by sucking movements. The hands and the mouth are linked together in what is called the Babkin response. The hands and the mouth are the baby's main tools for exploration and for expression, and residual reflexes in these areas can affect speech and articulation and fine muscle control.

Retained Palmar Reflex
- Poor manual dexterity - the reflex prevents independent thumb and finger movements.
- Lack of "pincer" grip affects pencil grip when writing.
- Speech difficulties - continuing relationship between hand and mouth movement via the Babkin response prevents development of independent muscle control at the front of the mouth/affect articulation.
- Palm of the hand may remain hypersensitive to tactile stimulation.
- Child may make movements with the mouth when trying to write or draw

The Asymmetrical Tonic Neck Reflex (ATNR)
Emerges at around 18 weeks in utero and is inhibited or suppressed between 6-8 months after birth, while awake. It persists up to three and a half years while asleep.

The ATNR fulfils many purposes. It may help survival. When a baby is placed prone, the head should go to one side, with extension of the arm and leg. This allows free passage of air. The ATNR is the first training ground for eye-hand coordination. Through the ATNR, the baby slowly extends the vision from near point fixation to distance, and therefore this is vital for eye-hand coordination training. This reflex is activated by head rotation to either side.

If the ATNR remains present after 8 months of birth it might affect crawling. The child is unable to reach and then bend the elbow to drag itself along (it is physiologically impossible to creep, commando style)

In the older child, it is as though there is an invisible force which causes the arm and hand to straighten whenever the head is turned to one side. The child may have to exert a great deal of conscious control when writing - something that should be automatic. In addition to the fatigue caused by the effort of fighting the reflex, the child's comprehension can suffer due to the cortex being involved in movement.

A retained ATNR can also affect vision. The hand does not want to cross the midline, and as the eyes are locked in to the hands, they do not want to cross the midline either. This can affect
reading, in that when the eyes get to the midline, they "jump" and the reader may lose his/her place.
Judging distance will also be difficult. If present in the legs, walking will be affected, and the child will tend to walk with a stiff leg gait. Catching a ball (bringing the hands together at the midline) will be affected. When the head turns right, the left knee will bend and therefore disturb balance.
Gross and fine muscle coordination and eye tracking will be affected. Many children who are articulate and bright just cannot seem to express themselves well in written work. It is as though the mind can think and the mouth can speak, but when a motor task is added (writing, for example) the child seems unable to demonstrate the intelligence that we know is there.
Retained Asymmetrical Tonic Neck Reflex
- Balance may be affected as result of head movements to either side.
- Homolateral (one sided), instead of normal cross pattern movements (walking, marching, skipping, etc.)
- Difficulty crossing the midline.
- Poor ocular pursuit movements, especially at the midline.
- Mixed laterality (the individual may use left foot, right hand, left ear, or may use left and right hand interchangeably for the same task).
- Poor handwriting and poor expression of ideas on paper.
- Visual-perceptual difficulties, particularly in symmetrical representation of figures.

The Tonic Labyrinthine Reflex (TLR)
Emerges around 3 - 4 months in utero (in flexion, or forwards) and at birth (in extensio or backwards) and is inhibited or suppressed between 3 -4 months after birth (in flexion) and 3 - 4 months to 3 and a half years (in extension).
This reflex is known as "the baby balance reflex". It plays a role in the development of muscle tone, a process which also helps to train balance and proprioception (the awareness of the position of the body or limbs).
This reflex is activated by head movement above and below the level of the spine.
If the TLR remains present - eyes, balance and proprioception to name but a few can be adversely affected. Head movement can affect muscle tone ('floppy' child - low or weak muscle tone), and this can cause a lack of center of balance. The brain will lack a reference point to judge space, depth, distance and speed, and this can cause problems with understanding where the body is in space, depth perception and difficulty with directions such as left, right, up, down. This can make spatial tasks difficult.
The ability to track smoothly and evenly with the eyes only comes as the TLR in extension is inhibited, and the continued presence of the TLR prevents the proper emergence of the Head Righting Reflexes.
As the eyes and ears operate on the same circuit of the brain (even sharing cranial nerves), poor visual information will affect balance, and poor balance will affect vision.
Retained Tonic Labyrinthine Reflex Forward
- Poor posture - stoop.
- Hypotonus - weak muscle tone.
- Vestibular problems
- Poor sense of balance.
- Propensity to get car sick.
- Dislike sports activities, P.E. classes, running, etc.
- Oculomotor dysfunctions
- Visual-perceptual difficulties.
- Spatial problems.
- Poor sequencing skills.
- Poor sense of time.

Retained Tonic Labyrinthine Reflex Backwards
- Poor posture - tendency to walk on toes.
- Poor balance and coordination.
- Hypertonus - stiff, jerky movements
- Vestibular related problems
- Poor sense of balance.
- Tendency to motion sickness.
- Oculomotor dysfunction
- Visual-perceptual difficulties.
- Spatial perception problems.
- Poor sequencing skills.
- Poor organization skills.

The Symmetrical Tonic neck Reflex (STNR) Emerges around 9 - 11 months after birth and is inhibited or suppressed at about one year. It has a very short, significant life. The sole task of the STNR is to get the child to begin to defy gravity. Every time the baby looks up the bottom goes back onto the ankles, and every time the baby looks down the elbows bend and the head virtually hits the floor. A retained STNR Primitive Reflex will make it impossible for the baby to crawl...and the baby may become a bottom hopper. In around 75% of LD children there is a retained STNR. (Goddard, S., 1998)
Later, during school age a retained STNR will be noticed during writing. The elbows bend and the head goes nearer and nearer to the writing surface. Many of these children are messy eaters. As they use a spoon, their head goes down. They do not have control over the hand and head movement, and therefore spill as much food as they put in their mouth. These children tend to compensate by lifting the spoon up and putting their head down. The STNR has been associated with reading, writing and concentration problems. It will also affect copying and spelling and has a definite, noticeable effect on posture and movement. It is very closely tied in with the TLR.
Retained Symmetrical Tonic Neck Reflex
- Poor posture.
- Tendency to "slump" when sitting at a desk or table.
- Simian (ape like) walk.
- "W" leg position when sitting on the floor.
- Poor eye hand coordination
- Messy eater.
- Difficulties with readjustment of binocular vision (cannot change focus easily from blackboard to desk).
- Slow at copying tasks.
- Poor swimming skills.